

WHAT IS CLAIMED IS:

1. A driving support system for a vehicle, comprising:

5 a vehicle which is provided with an image capturing portion that obtains image information on an area ahead of the vehicle; and

 a moving object which can communicate with the vehicle through mobile communication, wherein the vehicle three-dimensionally determines a possibility that an estimated running vector of the moving object will intersect with an estimated running
10 vector of the vehicle based on information obtained from the moving object through mobile communication and the image information.

2. The driving support system according to claim 1, wherein the information
15 exchanged through mobile communication includes positional information on the moving object, and the positional information is two-dimensional information.

3. The driving support system according to claim 1, wherein the information
20 exchanged through mobile communication includes information on a type of the moving object.

4. The driving support system according to claim 3, wherein the vehicle sets a
danger level concerning a collision between the moving object and the vehicle depending
on the type of the moving object.

5. A driving support system for a vehicle, comprising:

25 a moving object which transmits information including altitude information on the moving object through mobile communication; and

 first vehicle which receives the altitude information transmitted from the moving object, wherein the first vehicle three-dimensionally determines a possibility that an
30 estimated running vector of the moving object will intersect with an estimated running vector of the first vehicle using the altitude information.

6. The driving support system according to claim 5, wherein the moving object
includes an image capturing portion that captures an image of an area ahead of the moving

object, and transmits image information thereof to the first vehicle, and the first vehicle determines the possibility that the estimated running vector of the moving object will intersect with the estimated running vector of the first vehicle by spatially obtaining a road state near the moving object based on the image information transmitted from the moving
5 object.

7. The driving support system according to claim 5, wherein the moving object includes a device that detects the altitude information and the first vehicle determines the possibility that the estimated running vector of the moving object will intersect with the
10 estimated running vector of the first vehicle based on the altitude information transmitted from the moving object.

8. The driving support system according to claim 5, wherein:
the moving object is a second vehicle, and the second vehicle obtains the altitude
15 information from an infrastructure side through road-to-vehicle communication; and
the first vehicle determines the possibility that the estimated running vector of the moving object will intersect with the estimated running vector of the first vehicle based on the altitude information.

20 9. A driving support system for a vehicle, comprising:
an image capturing portion which is provided in a vehicle and which obtains image information on an area ahead of the vehicle;
a transmission portion which is provided in a moving object that is different from the vehicle, and which transmits information on the moving object;
25 a reception portion which is provided in the vehicle and which receives the information transmitted from the moving object; and
a determination portion which is provided in the vehicle and which determines a possibility that an estimated running vector of the moving object will intersect with an estimated running vector of the vehicle based on the information transmitted from the
30 moving object and the image information obtained by the image capturing portion.

10. A driving support system for a vehicle, comprising:
a transmission portion which is provided in a moving object and which transmits altitude information on the moving object;

a reception portion which is provided in a vehicle and which receives the altitude information transmitted from the transmission portion; and

a determination portion which is provided in the vehicle and which three-dimensionally determines a possibility that an estimated running vector of the moving object will intersect with an estimated running vector of the vehicle using the altitude information.

11. A driving support apparatus for a vehicle, comprising:

an image capturing portion which captures an image of an area ahead of a vehicle and which obtains image information on the area ahead of the vehicle; and

a determination portion which three-dimensionally determines a possibility that an estimated running vector of a moving object will intersect with an estimated running vector of the vehicle based on information on the moving object, which is different from the vehicle, that is obtained through mobile communication, and the image information on the area ahead of the vehicle, that is obtained by the image capturing portion.

12. The driving support apparatus according to claim 11, wherein the determination portion further includes a judgement portion which two-dimensionally determines the possibility that the estimated running vector of the moving object will intersect with the estimated running vector of the vehicle based on the information obtained through mobile communication, and which judges a danger level into which the possibility is classified among predetermined danger levels concerning a collision between the moving object and the vehicle; and a correction portion which corrects a result of the judgement obtained by the judgement portion using the image information on the area ahead of the vehicle.

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13. The driving support apparatus according to claim 12, wherein the correction portion corrects the result of the judgement only when a road that overpasses or underpasses a road on which the vehicle is running, or a highway is recognized ahead of the vehicle by the image capturing portion, and also it is determined that there is no road which two-dimensionally intersects with the road on which the vehicle is running.

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14. The driving support apparatus according to claim 11, further comprising, an information providing portion which provides a driver with at least one of information and a warning concerning presence of the moving object whose estimated running vector will

intersect with the estimated running vector of the vehicle.

15 15. The driving support apparatus according to claim 14, wherein the information providing portion raises a degree of importance and urgency of at least one of the information and the warning to be provided to the driver such that as a danger level concerning a collision between the moving object and the vehicle rises, a degree of attracting attention of the driver rises.

10 16. A driving support method for a vehicle, comprising:
a first step of capturing an image of an area ahead of a vehicle and obtaining image information on the area ahead of the vehicle; and
a second step of three-dimensionally determining a possibility that an estimated running vector of a moving object will intersect with an estimated running vector of the vehicle based on information obtained through mobile communication and the image
15 information.

17. The driving support method according to claim 16, wherein the second step includes a third step of two-dimensionally determining the possibility that the estimated running vector of the moving object will intersect with the estimated running vector of the vehicle based on the information obtained through mobile communication, and of judging
20 a danger level into which the possibility is classified among predetermined danger levels and a fourth step of correcting a result of the judgement using the image information.

25 18. The driving support method according to claim 17, wherein, in the fourth step, correction is performed only when a road that overpasses or underpasses a road on which the vehicle is running, or a highway is recognized ahead of the vehicle, and also it is determined that there is no road which two-dimensionally intersects with the road on which the vehicle is running.